



12-10-03 Image AF/2800

Applicant's Docket No. 67,200-663

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Yu-Hsuan Tsai
Serial No.: 10/ 060,494
Filed: Jan. 29, 2002
For: Method for Designing and Purchasing a Product

Group Art Unit: 2823
Examiner: William D. Coleman

Commissioner for Patents
Alexandria, VA 22313

TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION-37 CFR 192)

1. Transmitted herewith, in triplicate, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal Filed on Sept. 11, 2003.

NOTE: "The Appellant shall, within 2 months from the date of the notice of appeal under §1.191(a) or within the time allowed for response to the action appealed from, if such time is later, file a brief in "triplicate", 37 C.F.R. 1.192(a) [emphasis added].

2. STATUS OF APPLICANT

This application is on behalf of:

X other than a small entity.
— a small entity.

A verified statement:

— is attached.
— was already filed.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR 1.17(f), the fee for filing the Appeal Brief is:

— small entity \$165.00
X other than a small entity \$330.00

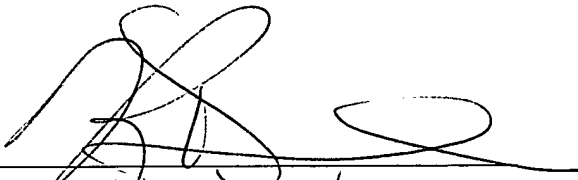
Appeal Brief fee due: \$ 330.00

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for Patents, Alexandria, VA 22313


Kathy Dixon

Dated: Dec 5/03

(Transmittal of Appeal Brief - page 1 of 3)

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110.00 OP

4. EXTENSION OF TERM

NOTE: The time periods set forth in 37 CFR 1.192(a) are subject to the provision of § 1.136 for patent applications. 37 CFR 1.191(d). See also Notice of November 5, 1985 (1060 O.G. 27).

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply:

(complete (a) or (b), as applicable)

- (a) ☐ Applicant petitions for an extension of time under 37 CFR 1.136
(fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

	Extension (months)	Fee for other than <u>small entity</u>	Fee for <u>small entity</u>
XX	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 420.00	\$210.00
<input type="checkbox"/>	three months	\$ 950.00	\$475.00
<input type="checkbox"/>	four months	\$1,480.00	\$740.00

Fee: \$ 110.00

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured, and the fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request: \$ _____

or

- (b) ☐ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal Brief Fee: \$ 440.00
Extension fee (if any) \$ _____

TOTAL FEE DUE: \$ 440.00

6. FEE PAYMENT

X Attached is a Credit Card Payment Form for the sum of \$ 440.00
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A duplicate copy of this transmittal is attached.

7. FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, 1065 O.G. 31-33.

 X If any additional extension and/or fee is required, this is a request therefor
to charge Deposit Account No. 50-0484

And/Or

 X If any additional fee for claims is required, please charge Deposit Account
No. 50-0484

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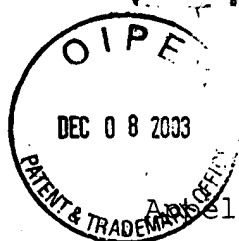
Signature of Attorney

Registration No. 31,311

Telephone: (248) 540-4040

Randy W. Tung

Tung & Associates
838 W. Long Lake Road, Ste. 120
Bloomfield Hills, Michigan 48302



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Yu-Hsuan Tsai Group Art Unit: 2823

Serial No.: 10/060,494 Examiner: William D. Coleman

Filed: January 29, 2002

For: Method For Designing And Purchasing A Product

Attorney Docket No.: 67,200-663

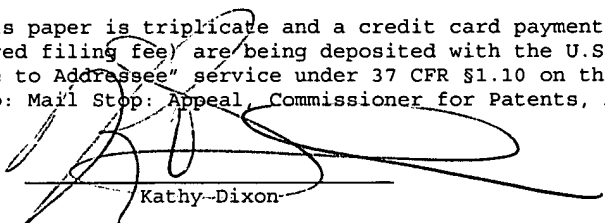
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Date of Deposit

Dec. 5/03

I hereby certify that this paper is triplicate and a credit card payment form in the amount of \$320.00 (required filing fee) are being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to: Mail Stop: Appeal, Commissioner for Patents, Alexandria, VA 22313-1450


Kathy Dixon

APPEAL BRIEF

Mail Stop: Appeal
Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

Appellant appeals in the captioned application from the Examiner's Final Office Action mailed August 11, 2003, (hereinafter "Final Office Action") rejecting claims 1-13 under 35 USC §102(b) as being anticipated by Bonora et al. U.S. Patent NO. 5,570,990 (hereinafter "BONORA").

It is urged that the rejections be reversed and that all

the rejected claims be allowed.

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(1) REAL PARTY IN INTEREST

The real party in interest in the present appeal is the recorded Assignee of Taiwan Semiconductor Manufacturing Co., Ltd.

(2) RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that are known to the Appellant, the Appellant's legal representative, or the assignee.

(3) STATUS OF THE CLAIMS

Claims 1-13 are pending in the application.

Claims 1-13 stand rejected. No claims are allowed.

(4) STATUS OF AMENDMENTS

A First Office Action rejecting all claims was mailed January 16, 2003 Office Action.

A Response to the January 16, 2003 Office Action was filed on or about April 22, 2003.

A Final Office Action rejecting all claims was mailed on June 11, 2003.

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A Request for Reconsideration amending Appellant's application under 37 CFR §1.116 was filed on or about August 11, 2003.

A Notice of Appeal was filed on or about September 11, 2003.

An Advisory Action was received from the Examiner dated September 16, 2003 maintaining rejection of all claims.

(5) SUMMARY OF THE INVENTION

"[I]t is one object of the present invention to provide container specific information to the operator when a container is not interfaced with a local processor"

(Specification, ¶ 007)

"It is a further object of the present invention to provide such information to the operator visually."

(Specification, ¶ 008)

"An electric data card follows the container through at least a portion of the manufacturing process. The data card includes a microcomputer and stores data related to the manufacturing

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process and related equipment. At least one light emitter is associated with the electronic data card and is operable in response to a set of instructions executed by the microcomputer to convey predetermined information about one or more of the manufacturing process and related equipment."

(Specification, ¶ 009)

"Operator interface buttons 31 and 33 allow the operator to view, line by line, a plurality of stored data lines on display 35. For example, a single touch of either button 31 or 33 may cause the display to illuminate and display the first line entry of data stored on the data card for the operator to read. **After a certain amount of time and without further operator depression of the buttons 31 or 33 the display will blank to conserve limited battery capacity.**"

(Specification, ¶ 0015)

"The data card further includes a battery (not shown) to provide power to the circuitry at least during periods when the container is not engaged with a canopy. During periods when the container is engaged with the canopy, power may be supplied to

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the data card from the processing station. An exemplary data card is described in further detail in United States Patent Number 5,166,884 assigned to Asyst Technologies Inc., the contents of which are hereby incorporated by reference."

(Specification, ¶ 0016)

"The signal on a microcomputer output line and hence the on or off state of the LED corresponding thereto is established by a set of instructions executed by the microcomputer to perform one or more conditional checks upon stored information corresponding to the manufacturing process or related equipment. For example, an LED may indicate a true or false state of a particular validation, check, or diagnostic performed upon data contained on data card 30. More particularly, a conditional check performed upon a stored variable is performed and the result conveyed visually and without intervention by the operator by the state of one or more LED."

(Specification, ¶ 0018)

"For example, a data card may contain data corresponding to an assigned priority for processing such as high or low, or

first, second and third, etc. Such data heretofore would be known to the operator only through depression of the buttons 31, 33 to find the desired line containing the data and searching the various available containers. The present invention can display such priority data in a number of ways. The instruction set executed by the microcomputer may command a single LED to illuminate continuously to convey high priority and not illuminate continuously to convey low priority. An intermediate priority may be conveyed by commanding the LED into a flashing state."

(Specification, ¶ 0019)

"Using again the example of priority data, a three LED system wherein red, yellow and green LED are utilized to convey high, medium and low priorities, respectively, is also proposed. Here, only one of the three LED is illuminated at a time whereby the operator may discern simply from the color of the LED illuminated what the priority of the container is. Alternatively, single color LED may be employed and illumination position (e.g. right, center, left or top, center, bottom) of the illuminated LED used to convey the priority information to

the operator. Likewise, intermediate priority data may be conveyed by multiple LED illumination such as green/yellow to convey a priority between the lowest and the middle, and yellow/red to convey a priority between the middle and the highest. In a binary coding scheme, each LED may also be used to represent a digit of an n-bit binary number allowing for 2^n discrete states to be displayed visually where n also equals the number of LED, and the relative positions of the LED correspond to the significant digit positions of the binary number."

(Specification, ¶ 0020)

"It is envisioned also that critical information to be conveyed to the operator visually by the present invention may be information that changes over time during a complete fabrication cycle or many fabrication cycles. For example, data corresponding to a container cleaning time may be contained on the data card. Such may be measured by a date certain, expiration of an internal timer, or number of port door cycles as non-exhaustive examples. Continuous illumination of a single LED may convey a request to clean the container in response to the time to clean criteria having been met. A warning of an

approaching time to clean may be conveyed by flashing the LED. The significance of a constantly illuminated and flashing LED may also be reversed. It can be appreciated that quick visual indication to the operator of imminent or immediate need for container cleaning may reduce the instance of low yields due to overdue cleaning. Other data indicative of a time/cycle event may be similarly conveyed, including other requests for preventive maintenance. Multiple LED may be employed as previously described with respect to the example of conveying priority information. That is, multiple colors may be employed with single colors and combinations of colors signifying relative priority, or in the present example relative time until a particular event or procedure is required or recommended. Alternatively, the binary coding scheme may also be employed. A single LED may be controllably illuminated to convey critical information about a single piece of information, or multiple LED may be controllably illuminated to convey critical information about a single piece of information. Multiple LED may be controllably illuminated to convey critical information about multiple pieces of information."

(Specification, ¶ 0021)

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"Another specific example of the utility of such a system is with respect to the limited battery capacity of the data card. Battery capacity or battery life may be measured such as with a simple timer expiration or via a more sophisticated methodology used to determine the battery state of charge. Such state of charge determination techniques are known and may require additional circuitry such as voltage and current comparators and A/D circuitry."

(Specification, ¶ 0022)

(6) ISSUES

Issue I

Is the rejection of claims 1-13 under 35 USC § 102(b) as being anticipated by BONORA proper when BONORA does not disclose, teach, or suggest the specifically claimed limitations of claims 1-13?

Issue II

Is the rejection of claims 1-13 based on the contention that independent claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116

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(Appellant's August 11, 2003 Response) presented limitations requiring a further search and consideration proper when claims 1, 7, and 11 as amended presented limitations directed to subject matter already at issue in the examination process?

(7) GROUPING OF CLAIMS

The rejection of claims 1-6 are contested as a group.

The rejection of claims 7-10 are contested as a group.

The rejection of claims 11-13 are contested as a group.

(8) ARGUMENTS

Issue I

Claims 1-13 are rejected under 35 USC § 102(b) as being anticipated by BONORA.

The Final Office Action contends that BONORA discloses

"an apparatus for visually conveying information to a human operator in a manufacturing process comprising:

. . .

[a] data card further [including] a battery and said data is related to battery life; and

multiple LED are controllably illuminated to convey critical information related to a single piece of information directly to a human operator."

Final Office Action, page 3, clause 5, and page 5, clause 13.

The rejection of claims 1-13 under 35 USC § 102(b) based on BONORA is improper and must be reversed.

BONORA teaches a human guided mobile loader stocker (110) for assisting in the transport of standardized mechanical interface (SMIF) containers or pods (18-1, 18-2, 18-4) in a semiconductor manufacturing operation. See BONORA, col. 8, lines 30-31, 60-62; see also BONORA, FIG. 10. The mobile loader stocker (110) has a container tracking unit (248) disposed thereon for tracking the containers (18-2, 18-4), the container tracking unit further has a display (258) and a keyboard (260) to communicate commands to and from an intelligent data card. See BONORA, col. 8, lines 60-65, col. 9, lines 1-12; see also

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BONORA, FIGS. 10-11. Additionally, BONORA teaches an intelligent data card (232-1) mounted to a side of a container or pod (18-1) having a battery. See BONORA, col. 7, lines 36-41, and col. 8, lines 32-33; see also BONORA, FIGS. 7 and 10. BONORA further teaches battery condition indicators (204) that are used to monitor the current state of the battery used to power the "electronics for the mobile loader stocker". BONORA, col. 7, lines 37-55. The pod mates to a processing station (12) which includes means (236) for communicating with the data card (232-1). See BONORA, col. 8, lines 31-35; see also BONORA, FIG. 10. The communicating means (236) (see FIG. 10) is disclosed as including a photosensitive transistor or other photodetector which responds to data transmitted by light emitting diodes or other communicating means. See BONORA, col. 8, lines 43-46.

To the contrary, the present invention as clearly recited in independent claim 1, recites:

an electronic data card that has "data
related to one or more of the manufacturing
process and related equipment,
a battery,

an apparatus for measuring capacity of the battery,

an alphanumeric display capable of blanking when not in use,

at least one operator interface button that cooperates to selectively display the data related to one or more of the manufacturing process and related equipment on the alphanumeric display, and wherein the at least one operator interface button is not depressed, the alphanumeric display becomes blank to conserve battery capacity; and

at least one light emitter disposed on the electronic data card and operable in response to a set of instructions executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment."

Thus, the present invention provides an alphanumeric display capable of blanking when not in use to preserve battery capacity. (Applicant's Specification paragraph 0015-0016).

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Additionally, the present invention provides an apparatus for visually conveying information directly to a human operator by way of one or more discrete light emitters (Applicant's Specification paragraph 0018). The manner of visually conveying information to the operator is without intervention by the operator and in accord with continuous or intermittent activation states of the light emitter (Applicant's Specification paragraphs 0019-0020).

The Appellant respectfully submits that such is not taught or disclosed by BONORA.

The Final Office Action, pg. 3, clause 5, and pg. 4, clause 11, references BONORA, col. 7, lines 37-45 to support the contention that the battery condition indicators (204), controlled by motor control logic (200) of the **mobile loader stocker** (110) of the BONORA reference is the same as the apparatus for measuring battery capacity of the battery associated with the intelligent data card of present invention.

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As described in the BONORA reference, col. 7, lines 37-55, the battery condition indicators (204) are used to monitor the current state of the battery used to power the **"electronics for the mobile loader stocker"**. However, the BONORA reference fails to extend the use of such battery condition indicators for the battery associated with the intelligent data card (232-1).

Unlike the present invention, the BONORA reference fails to provide any means for conserving battery capacity of the battery associated with the intelligent data card (232-1).

Additionally, the display (258) of the BONORA reference is disposed on the mobile loader stocker (110) **NOT** on the intelligent data card (232-1). Furthermore, the display (258) of the BONORA reference is accessed via use of the keyboard (260) which is also disposed on the mobile loader stocker (110) and **NOT** on the BONORA intelligent data card (232-10).

Unlike the BONORA reference, the present invention provides both the alphanumeric display (35) and the operator interface buttons (31, 33) to selectively display data on the alphanumeric

display on the data card (40), not on a separate apparatus such as a processing station. Additionally, the alphanumeric display of the present invention goes blank when the operator interface buttons are not blank to conserve battery capacity of the battery associated with the data card (40). Additionally, the present invention further provides an apparatus, such as a timer expiration (see Applicant's Specification paragraph 0020), to measure battery capacity of the battery associated with the data card (40).

The Appellants therefore respectfully submit that BONOROA does not disclose, teach, or suggest an apparatus of the present invention **having an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve battery capacity.**

The Appellants have clearly shown that the basic structure, as recited in independent claim 1, of the present invention data card which incorporates an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve

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battery capacity is not disclosed, taught, or suggested by BONORA.

Similarly, independent claims 7, and 11, recite an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve battery capacity similar as claimed in independent claim 1.

Additionally, the Office Action, page 3, clause 2, equates the BONORA communicating means (236) including a photodetector which responds to data transmitted by light emitting diodes with the light emitter disposed on the data card of the present invention. See BONORA, col. 8, lines 38-46.

Appellant respectfully disagrees. As recited on page 5 of Applicant's April 16, 2003 Response to the January 16, 2003 Office Action:

"Bonora is clearly concerned with optocoupling of data card information to another piece of production processing equipment. . . . Nowhere does Bonora disclose that the LED(s) disclosed in Bonora

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are for any information conveyance directly to a human operator nor does it suggest any such use or adaptation."

Thus, the LEDs used in BONORA are used for serial communication of data from one piece of equipment to another and require use of a photodetector to receive signals from an LED. Clearly, the LEDs in the BONORA reference **are not used to visually communicate to a human operator without the use of an intermediary photodetector device.**

Unlike the BONORA reference, the intelligent data card described in Maney et al, U.S. Patent No. 5,155,884, (hereinafter "MANEY"), issued on Nov. 24, 1992, which is disclosed in Applicant's Specification paragraph 0016 does have a display and keyboard mounted to the data card. However, MANEY requires an operator to use the keyboard to communicate with the display.

Unlike both the MANEY and the BONORA reference, the present invention requires only one button to access the data card

display, thus providing for a much more compact design than the display/keyboard design of the MANEY reference. The MANEY reference also fails to disclose a battery capacity measuring apparatus or a method to conserve battery capacity. Also like the LEDs used in the BONORA reference, the LEDs disclosed in the MANEY reference are used for serial or digital communications with another piece of equipment and **are not used to visually communicate with a human operator.**

Similarly, independent claims 7, and 11, recite LEDs used to visually communicate with a human operator as claimed in independent claim 1.

Clearly, the apparatus and methods disclosed in both the BONORA and the MANEY references do not anticipate the claimed invention. Thus, the BONOROA and the MANEY references fail to disclose, teach, or suggest an apparatus of the present invention **for visually communicating information to a human operator having an electronic data card having a battery measuring capability, and an alphanumeric display disposed on**

the electronic data card that goes blank when not in use to preserve battery capacity.

Thus, the arguments provided supra regarding the non-anticipation of claim 1 in light of BONORA and MANEY can be similarly applied to claims 7, and 11. Thus, independent claims 1, 7, and 11 are not anticipated by BONORA.

Additionally, claims 2-6, which depend from claim 1, claims 8-10, which depend from claim 7, and 12-13, which depend from claim 11 are not anticipated by BONORA.

The rejection of claims 1-13 under 35 USC § 102(b) based on BONORA is improper and must be reversed.

Issue II

The rejection of claims 1-13 based on the contention that independent claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116 (Appellant's August 11, 2003 Response) presented limitations requiring a further search and consideration is improper when

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claims 1, 7, and 11 as amended presented limitations directed to subject matter already at issue in the examination process.

The September 16, 2003 Advisory Action maintained rejection of claims 1-13 based on the contention that claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116 (Appellant's August 11, 2003 Response) presented limitations directed to subject matter requiring a further search and consideration.

The rejection of claims 1-13 based on introduction of limitations requiring further search and consideration is improper and must be reversed.

Appellant submits that no new issues were raised in Appellant's August 11, 2003 Response because Appellant was only addressing issues already raised in both the Final Office Action and in the First Office Action mailed on January 16, 2003.

The first issue that Appellant addressed in Appellant's August 11, 2003 Response concerned battery capacity of the data card battery.

As discussed supra, in Issue I, the issue of battery capacity was raised by Examiner in the Final Office Action, pg. 3, clause 5, and pg. 4, clause 11 as follows:

"Pertaining to claim 4, Bonora teaches the apparatus as claimed in claim 1 wherein the data card further includes a battery and said data is related to battery life (column 7, lines 37-45) . . ."

Final Office Action, pg. 3, clause 5.

"Pertaining to claim 10, Bonora teaches the electronic data card as claimed in claim 7 further comprising a battery, wherein said manufacturing process and related equipment information comprises a battery life variable."

Final Office Action, pg. 4, clause 11.

Thus, the issue of battery capacity was raised in the Final Office Action and in Appellant's August 11, 2003 Response including amendment of independent claims 1, 7, and 11, and does not warrant further search and consideration on behalf of the Examiner.

The second issue that Appellant addressed in Appellant's August 11, 2003 Response concerned the visual communication of data associated with the data card using LEDs to a human operator.

As discussed supra, in Issue II, the visual communication means was raised by Examiner in the Final Office Action, page 3, clause 2 as follows:

"an electronic data card 232-1 that follows the container through at least a portion of the manufacturing process, said electronic data card including a microcomputer (column 8, lines 30-46) and containing data related to one or more of the manufacturing process and related equipment; and, at least one light emitter (not shown, column 8, line 44)

associated with the electronic data card and operable in response to a set of instruction executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment."

Thus the Office equates the BONORA communicating means (236) including a photodetector which responds to data transmitted by light emitting diodes with the light emitter disposed on the data card of the present invention.

Thus, the issue of using LEDS to visually communicate with a human operator was raised in the Final Office Action and in Appellant's August 11, 2003 Response including amendment of independent claims 1, 7, and 11, and does not warrant further search and consideration on behalf of the Examiner.

Accordingly, the Final Office Action raised 1) the issue of battery capacity and 2) the issue of using LEDS to visually communicate with a human operator. Thus, Appellant's amended

claims 1, 7, and 11 including limitations directed to 1) the issue of battery capacity and 2) the issue of using LEDS to visually communicate with a human operator were amended in direct response to Examiner's Final Office Action. Thus, none of the limitations provided in amended claims 1, 7, and 11 present subject matter requiring further search or consideration.

Therefore, the rejection of claims 1, 7, and 11, and claims which depend therefrom based on presentation of limitations requiring further search or consideration is improper and must be reversed.

CLOSING

In summary, the Appellant has shown that Appellant's claimed invention is fully supported by a body of evidence non-anticipation and limitations having subject matter not requiring additional search and consideration. It is respectfully submitted that such evidence of non-anticipation overcomes any showing of anticipation and of presentation of limitations having subject matter requiring additional search and consideration presented by the Examiner. The Appellant

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therefore submits that the final rejection of claims 1-13 is improper under 35 USC 102(b) and under introduction of claim limitations requiring further search and consideration. The reversal of the final rejection is respectfully solicited from the Board.

Respectfully submitted,

Tung & Associates

A handwritten signature in black ink, appearing to read 'Randy W. Tung', is written over a horizontal line. The signature is stylized with a large loop at the beginning.

Randy W. Tung

Reg. No. 31,311

Telephone: (248) 540-4040

CLAIM APPENDIX

Claim 1. Apparatus for visually conveying information to a human operator in a manufacturing process comprising:

a container for transporting work in progress used in the manufacturing process;

an electronic data card that follows the container through at least a portion of the manufacturing process, said electronic data card including

a microcomputer,

data related to one or more of the manufacturing process and related equipment,

a battery,

an apparatus for measuring capacity of the battery,

an alphanumeric display capable of blanking when not in use,

at least one operator interface button that cooperates to selectively display the data related to one or more of the manufacturing process and related equipment on the alphanumeric display, and wherein the at least one operator

interface button is not depressed, the alphanumeric display becomes blank to conserve battery capacity; and, at least one light emitter disposed on the electronic data card and operable in response to a set of instructions executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment.

2. The apparatus as claimed in claim 1 wherein said data is related to a predetermined time to clean said container.

3. The apparatus as claimed in claim 1 wherein said data is related to priority of the work in progress associated with said container.

4. The apparatus as claimed in claim 1 wherein said data is related to battery life.

5. The apparatus as claimed in claim 1 wherein said light emitter is a light emitting diode.

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6. The apparatus as claimed in claim 1 wherein said work in progress comprises microchip wafers.

7. An electronic data card for storing predetermined manufacturing process and related equipment information, said electronic data card including a microcomputer, an alphanumeric display and operator interface buttons for operator retrieval of stored manufacturing process and related equipment information, the improvement comprising:

a battery,

an apparatus for measuring capacity of the battery, wherein the alphanumeric display becomes blank to conserve battery capacity when the operator interface buttons are not depressed; and

at least one light emitting diode conditionally illuminated in accordance with a set of instructions executed by the microcomputer to perform at least one conditional check upon at least one of said stored manufacturing process and related equipment information, wherein the result of said at least one conditional check is visually conveyed for viewing by a human

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operator by the illumination condition of said at least one light emitting diode.

8. The electronic data card as claimed in claim 7 wherein said manufacturing process and related equipment information comprises a preventive maintenance variable.

9. The electronic data card as claimed in claim 7 wherein said manufacturing process and related equipment information comprises a process priority variable.

10. The electronic data card as claimed in claim 7, wherein said manufacturing process and related equipment information comprises a battery life variable.

11. A method of visually conveying critical information associated with a production lot of work in progress wafers in a microchip fabrication process comprising the steps:

providing an electronic data card capable of storing information, executing a set of instructions, and having at least one controllably illuminated LED and wherein the

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electronic data card has an alphanumeric display, at least one operator interface button, a battery, and an apparatus for measuring capacity of the battery;

blanking the alphanumeric display to conserve battery capacity when the at least one operator interface button is not depressed;

using a battery capacity measuring apparatus to measure the battery capacity;

associating said electronic data card with said production lot throughout at least a portion of the fabrication process;

storing predetermined information corresponding to the production lot on said data card;

providing the electronic data card with a set of executable instructions for performing conditional checks on said predetermined information; and,

controlling the illumination of said at least one LED in a predetermined manner in accordance with results of said conditional checks on said predetermined information, whereby the manner in which the LED is illuminated visually conveys critical information associated with said production lot related to said predetermined information directly to a human operator.

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12. The method as claimed in claim 11 wherein multiple LED are controllably illuminated to convey critical information related to a single piece of information.

13. The method as claimed in claim 11 wherein multiple LED are controllably illuminated to convey critical information related to multiple pieces of information.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Yu-Hsuan Tsai Group Art Unit: 2823

Serial No.: 10/060,494 Examiner: William D. Coleman

Filed: January 29, 2002

For: Method For Designing And Purchasing A Product

Attorney Docket No.: 67,200-663

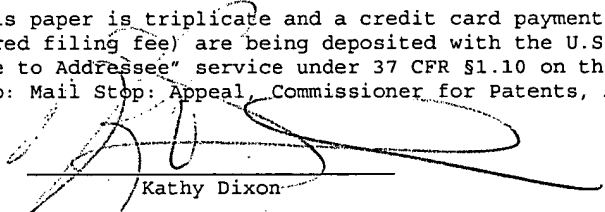
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I hereby certify that this paper is triplicate and a credit card payment form in the amount of \$320.00 (required filing fee) are being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to: Mail Stop: Appeal, Commissioner for Patents, Alexandria, VA 22313-1450


Kathy Dixon

APPEAL BRIEF

Mail Stop: Appeal
Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

Appellant appeals in the captioned application from the Examiner's Final Office Action mailed August 11, 2003, (hereinafter "Final Office Action") rejecting claims 1-13 under 35 USC §102(b) as being anticipated by Bonora et al. U.S. Patent NO. 5,570,990 (hereinafter "BONORA").

It is urged that the rejections be reversed and that all the rejected claims be allowed.

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(1) REAL PARTY IN INTEREST

The real party in interest in the present appeal is the recorded Assignee of Taiwan Semiconductor Manufacturing Co., Ltd.

(2) RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that are known to the Appellant, the Appellant's legal representative, or the assignee.

(3) STATUS OF THE CLAIMS

Claims 1-13 are pending in the application.

Claims 1-13 stand rejected. No claims are allowed.

(4) STATUS OF AMENDMENTS

A First Office Action rejecting all claims was mailed January 16, 2003 Office Action.

A Response to the January 16, 2003 Office Action was filed on or about April 22, 2003.

A Final Office Action rejecting all claims was mailed on June 11, 2003.

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A Request for Reconsideration amending Appellant's application under 37 CFR §1.116 was filed on or about August 11, 2003.

A Notice of Appeal was filed on or about September 11, 2003.

An Advisory Action was received from the Examiner dated September 16, 2003 maintaining rejection of all claims.

(5) SUMMARY OF THE INVENTION

"[I]t is one object of the present invention to provide container specific information to the operator when a container is not interfaced with a local processor"

(Specification, ¶ 007)

"It is a further object of the present invention to provide such information to the operator visually."

(Specification, ¶ 008)

"An electric data card follows the container through at least a portion of the manufacturing process. The data card includes a microcomputer and stores data related to the manufacturing

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process and related equipment. At least one light emitter is associated with the electronic data card and is operable in response to a set of instructions executed by the microcomputer to convey predetermined information about one or more of the manufacturing process and related equipment."

(Specification, ¶ 009)

"Operator interface buttons 31 and 33 allow the operator to view, line by line, a plurality of stored data lines on display 35. For example, a single touch of either button 31 or 33 may cause the display to illuminate and display the first line entry of data stored on the data card for the operator to read. **After a certain amount of time and without further operator depression of the buttons 31 or 33 the display will blank to conserve limited battery capacity.**"

(Specification, ¶ 0015)

"The data card further includes a battery (not shown) to provide power to the circuitry at least during periods when the container is not engaged with a canopy. During periods when the container is engaged with the canopy, power may be supplied to

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the data card from the processing station. An exemplary data card is described in further detail in United States Patent Number 5,166,884 assigned to Asyst Technologies Inc., the contents of which are hereby incorporated by reference."

(Specification, ¶ 0016)

"The signal on a microcomputer output line and hence the on or off state of the LED corresponding thereto is established by a set of instructions executed by the microcomputer to perform one or more conditional check upon stored information corresponding to the manufacturing process or related equipment. For example, an LED may indicate a true or false state of a particular validation, check, or diagnostic performed upon data contained on data card 30. More particularly, a conditional check performed upon a stored variable is performed and the result conveyed visually and without intervention by the operator by the state of one or more LED."

(Specification, ¶ 0018)

"For example, a data card may contain data corresponding to an assigned priority for processing such as high or low, or

first, second and third, etc. Such data heretofore would be known to the operator only through depression of the buttons 31, 33 to find the desired line containing the data and searching the various available containers. The present invention can display such priority data in a number of ways. The instruction set executed by the microcomputer may command a single LED to illuminate continuously to convey high priority and not illuminate continuously to convey low priority. An intermediate priority may be conveyed by commanding the LED into a flashing state."

(Specification, ¶ 0019)

"Using again the example of priority data, a three LED system wherein red, yellow and green LED are utilized to convey high, medium and low priorities, respectively, is also proposed. Here, only one of the three LED is illuminated at a time whereby the operator may discern simply from the color of the LED illuminated what the priority of the container is. Alternatively, single color LED may be employed and illumination position (e.g. right, center, left or top, center, bottom) of the illuminated LED used to convey the priority information to

the operator. Likewise, intermediate priority data may be conveyed by multiple LED illumination such as green/yellow to convey a priority between the lowest and the middle, and yellow/red to convey a priority between the middle and the highest. In a binary coding scheme, each LED may also be used to represent a digit of an n-bit binary number allowing for 2^n discrete states to be displayed visually where n also equals the number of LED, and the relative positions of the LED correspond to the significant digit positions of the binary number."

(Specification, ¶ 0020)

"It is envisioned also that critical information to be conveyed to the operator visually by the present invention may be information that changes over time during a complete fabrication cycle or many fabrication cycles. For example, data corresponding to a container cleaning time may be contained on the data card. Such may be measured by a date certain, expiration of an internal timer, or number of port door cycles as non-exhaustive examples. Continuous illumination of a single LED may convey a request to clean the container in response to the time to clean criteria having been met. A warning of an

approaching time to clean may be conveyed by flashing the LED. The significance of a constantly illuminated and flashing LED may also be reversed. It can be appreciated that quick visual indication to the operator of imminent or immediate need for container cleaning may reduce the instance of low yields due to overdue cleaning. Other data indicative of a time/cycle event may be similarly conveyed, including other requests for preventive maintenance. Multiple LED may be employed as previously described with respect to the example of conveying priority information. That is, multiple colors may be employed with single colors and combinations of colors signifying relative priority, or in the present example relative time until a particular event or procedure is required or recommended. Alternatively, the binary coding scheme may also be employed. A single LED may be controllably illuminated to convey critical information about a single piece of information, or multiple LED may be controllably illuminated to convey critical information about a single piece of information. Multiple LED may be controllably illuminated to convey critical information about multiple pieces of information."

(Specification, ¶ 0021)

"Another specific example of the utility of such a system is with respect to the limited battery capacity of the data card. Battery capacity or battery life may be measured such as with a simple timer expiration or via a more sophisticated methodology used to determine the battery state of charge. Such state of charge determination techniques are known and may require additional circuitry such as voltage and current comparators and A/D circuitry."

(Specification, ¶ 0022)

(6) ISSUES

Issue I

Is the rejection of claims 1-13 under 35 USC § 102(b) as being anticipated by BONORA proper when BONORA does not disclose, teach, or suggest the specifically claimed limitations of claims 1-13?

Issue II

Is the rejection of claims 1-13 based on the contention that independent claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116

(Appellant's August 11, 2003 Response) presented limitations requiring a further search and consideration proper when claims 1, 7, and 11 as amended presented limitations directed to subject matter already at issue in the examination process?

(7) GROUPING OF CLAIMS

The rejection of claims 1-6 are contested as a group.

The rejection of claims 7-10 are contested as a group.

The rejection of claims 11-13 are contested as a group.

(8) ARGUMENTS

Issue I

Claims 1-13 are rejected under 35 USC § 102(b) as being anticipated by BONORA.

The Final Office Action contends that BONORA discloses

"an apparatus for visually conveying information to a human operator in a manufacturing process comprising:

. . .

[a] data card further [including] a battery and said data is related to battery life; and

multiple LED are controllably illuminated to convey critical information related to a single piece of information directly to a human operator."

Final Office Action, page 3, clause 5, and page 5, clause 13.

The rejection of claims 1-13 under 35 USC § 102(b) based on BONORA is improper and must be reversed.

BONORA teaches a human guided mobile loader stocker (110) for assisting in the transport of standardized mechanical interface (SMIF) containers or pods (18-1, 18-2, 18-4) in a semiconductor manufacturing operation. See BONORA, col. 8, lines 30-31, 60-62; see also BONORA, FIG. 10. The mobile loader stocker (110) has a container tracking unit (248) disposed thereon for tracking the containers (18-2, 18-4), the container tracking unit further has a display (258) and a keyboard (260) to communicate commands to and from an intelligent data card. See BONORA, col. 8, lines 60-65, col. 9, lines 1-12; see also

BONORA, FIGS. 10-11. Additionally, BONORA teaches an intelligent data card (232-1) mounted to a side of a container or pod (18-1) having a battery. See BONORA, col. 7, lines 36-41, and col. 8, lines 32-33; see also BONORA, FIGS. 7 and 10. BONORA further teaches battery condition indicators (204) that are used to monitor the current state of the battery used to power the "electronics for the mobile loader stocker". BONORA, col. 7, lines 37-55. The pod mates to a processing station (12) which includes means (236) for communicating with the data card (232-1). See BONORA, col. 8, lines 31-35; see also BONORA, FIG. 10. The communicating means (236) (see FIG. 10) is disclosed as including a photosensitive transistor or other photodetector which responds to data transmitted by light emitting diodes or other communicating means. See BONORA, col. 8, lines 43-46.

To the contrary, the present invention as clearly recited in independent claim 1, recites:

an electronic data card that has "data
related to one or more of the manufacturing
process and related equipment,

a battery,

an apparatus for measuring capacity of the battery,

an alphanumeric display capable of blanking when not in use,

at least one operator interface button that cooperates to selectively display the data related to one or more of the manufacturing process and related equipment on the alphanumeric display, and wherein the at least one operator interface button is not depressed, the alphanumeric display becomes blank to conserve battery capacity; and

at least one light emitter disposed on the electronic data card and operable in response to a set of instructions executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment."

Thus, the present invention provides an alphanumeric display capable of blanking when not in use to preserve battery capacity. (Applicant's Specification paragraph 0015-0016).

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Additionally, the present invention provides an apparatus for visually conveying information directly to a human operator by way of one or more discrete light emitters (Applicant's Specification paragraph 0018). The manner of visually conveying information to the operator is without intervention by the operator and in accord with continuous or intermittent activation states of the light emitter (Applicant's Specification paragraphs 0019-0020).

The Appellant respectfully submits that such is not taught or disclosed by BONORA.

The Final Office Action, pg. 3, clause 5, and pg. 4, clause 11, references BONORA, col. 7, lines 37-45 to support the contention that the battery condition indicators (204), controlled by motor control logic (200) of the **mobile loader stocker** (110) of the BONORA reference is the same as the apparatus for measuring battery capacity of the battery associated with the intelligent data card of present invention.

As described in the BONORA reference, col. 7, lines 37-55, the battery condition indicators (204) are used to monitor the current state of the battery used to power the **"electronics for the mobile loader stocker"**. However, the BONORA reference fails to extend the use of such battery condition indicators for the battery associated with the intelligent data card (232-1).

Unlike the present invention, the BONORA reference fails to provide any means for conserving battery capacity of the battery associated with the intelligent data card (232-1).

Additionally, the display (258) of the BONORA reference is disposed on the mobile loader stocker (110) **NOT** on the intelligent data card (232-1). Furthermore, the display (258) of the BONORA reference is accessed via use of the keyboard (260) which is also disposed on the mobile loader stocker (110) and **NOT** on the BONORA intelligent data card (232-10).

Unlike the BONORA reference, the present invention provides both the alphanumeric display (35) and the operator interface buttons (31, 33) to selectively display data on the alphanumeric

display on the data card (40), not on a separate apparatus such as a processing station. Additionally, the alphanumeric display of the present invention goes blank when the operator interface buttons are not blank to conserve battery capacity of the battery associated with the data card (40). Additionally, the present invention further provides an apparatus, such as a timer expiration (see Applicant's Specification paragraph 0020), to measure battery capacity of the battery associated with the data card (40).

The Appellants therefore respectfully submit that BONOROA does not disclose, teach, or suggest an apparatus of the present invention **having an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve battery capacity.**

The Appellants have clearly shown that the basic structure, as recited in independent claim 1, of the present invention data card which incorporates an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve

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battery capacity is not disclosed, taught, or suggested by BONORA.

Similarly, independent claims 7, and 11, recite an alphanumeric display disposed on an electronic data card that goes blank when not in use to preserve battery capacity similar as claimed in independent claim 1.

Additionally, the Office Action, page 3, clause 2, equates the BONORA communicating means (236) including a photodetector which responds to data transmitted by light emitting diodes with the light emitter disposed on the data card of the present invention. See BONORA, col. 8, lines 38-46.

Appellant respectfully disagrees. As recited on page 5 of Applicant's April 16, 2003 Response to the January 16, 2003 Office Action:

"Bonora is clearly concerned with optocoupling of data card information to another piece of production processing equipment. . . Nowhere does Bonora disclose that the LED(s) disclosed in Bonora

are for any information conveyance directly to a human operator nor does it suggest any such use or adaptation."

Thus, the LEDs used in BONORA are used for serial communication of data from one piece of equipment to another and require use of a photodetector to receive signals from an LED. Clearly, the LEDs in the BONORA reference **are not used to visually communicate to a human operator without the use of an intermediary photodetector device.**

Unlike the BONORA reference, the intelligent data card described in Maney et al, U.S. Patent No. 5,155,884, (hereinafter "MANEY"), issued on Nov. 24, 1992, which is disclosed in Applicant's Specification paragraph 0016 does have a display and keyboard mounted to the data card. However, MANEY requires an operator to use the keyboard to communicate with the display.

Unlike both the MANEY and the BONORA reference, the present invention requires only one button to access the data card

display, thus providing for a much more compact design than the display/keyboard design of the MANEY reference. The MANEY reference also fails to disclose a battery capacity measuring apparatus or a method to conserve battery capacity. Also like the LEDs used in the BONORA reference, the LEDs disclosed in the MANEY reference are used for serial or digital communications with another piece of equipment and **are not used to visually communicate with a human operator.**

Similarly, independent claims 7, and 11, recite LEDs used to visually communicate with a human operator as claimed in independent claim 1.

Clearly, the apparatus and methods disclosed in both the BONORA and the MANEY references do not anticipate the claimed invention. Thus, the BONOROA and the MANEY references fail to disclose, teach, or suggest an apparatus of the present invention **for visually communicating information to a human operator having an electronic data card having a battery measuring capability, and an alphanumeric display disposed on**

the electronic data card that goes blank when not in use to preserve battery capacity.

Thus, the arguments provided supra regarding the non-anticipation of claim 1 in light of BONORA and MANEY can be similarly applied to claims 7, and 11. Thus, independent claims 1, 7, and 11 are not anticipated by BONORA.

Additionally, claims 2-6, which depend from claim 1, claims 8-10, which depend from claim 7, and 12-13, which depend from claim 11 are not anticipated by BONORA.

The rejection of claims 1-13 under 35 USC § 102(b) based on BONORA is improper and must be reversed.

Issue II

The rejection of claims 1-13 based on the contention that independent claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116 (Appellant's August 11, 2003 Response) presented limitations requiring a further search and consideration is improper when

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claims 1, 7, and 11 as amended presented limitations directed to subject matter already at issue in the examination process.

The September 16, 2003 Advisory Action maintained rejection of claims 1-13 based on the contention that claims 1, 7, and 11, as amended in Appellant's August 11, 2003 Request for Reconsideration under 37 CFR §1.116 (Appellant's August 11, 2003 Response) presented limitations directed to subject matter requiring a further search and consideration.

The rejection of claims 1-13 based on introduction of limitations requiring further search and consideration is improper and must be reversed.

Appellant submits that no new issues were raised in Appellant's August 11, 2003 Response because Appellant was only addressing issues already raised in both the Final Office Action and in the First Office Action mailed on January 16, 2003.

The first issue that Appellant addressed in Appellant's August 11, 2003 Response concerned battery capacity of the data card battery.

As discussed supra, in Issue I, the issue of battery capacity was raised by Examiner in the Final Office Action, pg. 3, clause 5, and pg. 4, clause 11 as follows:

"Pertaining to claim 4, Bonora teaches the apparatus as claimed in claim 1 wherein the data card further includes a battery and said data is related to battery life (column 7, lines 37-45) . . ."

Final Office Action, pg. 3, clause 5.

"Pertaining to claim 10, Bonora teaches the electronic data card as claimed in claim 7 further comprising a battery, wherein said manufacturing process and related equipment information comprises a battery life variable."

Final Office Action, pg. 4, clause 11.

Thus, the issue of battery capacity was raised in the Final Office Action and in Appellant's August 11, 2003 Response including amendment of independent claims 1, 7, and 11, and does not warrant further search and consideration on behalf of the Examiner.

The second issue that Appellant addressed in Appellant's August 11, 2003 Response concerned the visual communication of data associated with the data card using LEDs to a human operator.

As discussed supra, in Issue II, the visual communication means was raised by Examiner in the Final Office Action, page 3, clause 2 as follows:

"an electronic data card 232-1 that follows the container through at least a portion of the manufacturing process, said electronic data card including a microcomputer (column 8, lines 30-46) and containing data related to one or more of the manufacturing process and related equipment; and, at least one light emitter (not shown, column 8, line 44)

associated with the electronic data card and operable in response to a set of instruction executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment."

Thus the Office equates the BONORA communicating means (236) including a photodetector which responds to data transmitted by light emitting diodes with the light emitter disposed on the data card of the present invention.

Thus, the issue of using LEDS to visually communicate with a human operator was raised in the Final Office Action and in Appellant's August 11, 2003 Response including amendment of independent claims 1, 7, and 11, and does not warrant further search and consideration on behalf of the Examiner.

Accordingly, the Final Office Action raised 1) the issue of battery capacity and 2) the issue of using LEDS to visually communicate with a human operator. Thus, Appellant's amended

claims 1, 7, and 11 including limitations directed to 1) the issue of battery capacity and 2) the issue of using LEDS to visually communicate with a human operator were amended in direct response to Examiner's Final Office Action. Thus, none of the limitations provided in amended claims 1, 7, and 11 present subject matter requiring further search or consideration.

Therefore, the rejection of claims 1, 7, and 11, and claims which depend therefrom based on presentation of limitations requiring further search or consideration is improper and must be reversed.

CLOSING

In summary, the Appellant has shown that Appellant's claimed invention is fully supported by a body of evidence non-anticipation and limitations having subject matter not requiring additional search and consideration. It is respectfully submitted that such evidence of non-anticipation overcomes any showing of anticipation and of presentation of limitations having subject matter requiring additional search and consideration presented by the Examiner. The Appellant

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therefore submits that the final rejection of claims 1-13 is improper under 35 USC 102(b) and under introduction of claim limitations requiring further search and consideration. The reversal of the final rejection is respectfully solicited from the Board.

Respectfully submitted,

Tung & Associates

A handwritten signature in black ink, appearing to be 'Randy W. Tung', is written over a horizontal line. The signature is stylized with a large, circular loop at the beginning.

Randy W. Tung

Reg. No. 31,311

Telephone: (248) 540-4040

CLAIM APPENDIX

Claim 1. Apparatus for visually conveying information to a human operator in a manufacturing process comprising:

a container for transporting work in progress used in the manufacturing process;

an electronic data card that follows the container through at least a portion of the manufacturing process, said electronic data card including

a microcomputer,

data related to one or more of the manufacturing process and related equipment,

a battery,

an apparatus for measuring capacity of the battery,

an alphanumeric display capable of blanking when not in use,

at least one operator interface button that cooperates to selectively display the data related to one or more of the manufacturing process and related equipment on the alphanumeric display, and wherein the at least one operator

interface button is not depressed, the alphanumeric display becomes blank to conserve battery capacity; and,

at least one light emitter disposed on the electronic data card and operable in response to a set of instructions executed by said microcomputer to visually convey predetermined information directly to a human operator about one or more of the manufacturing process and related equipment.

2. The apparatus as claimed in claim 1 wherein said data is related to a predetermined time to clean said container.

3. The apparatus as claimed in claim 1 wherein said data is related to priority of the work in progress associated with said container.

4. The apparatus as claimed in claim 1 wherein said data is related to battery life.

5. The apparatus as claimed in claim 1 wherein said light emitter is a light emitting diode.

6. The apparatus as claimed in claim 1 wherein said work in progress comprises microchip wafers.

7. An electronic data card for storing predetermined manufacturing process and related equipment information, said electronic data card including a microcomputer, an alphanumeric display and operator interface buttons for operator retrieval of stored manufacturing process and related equipment information, the improvement comprising:

a battery,

an apparatus for measuring capacity of the battery, wherein the alphanumeric display becomes blank to conserve battery capacity when the operator interface buttons are not depressed; and

at least one light emitting diode conditionally illuminated in accordance with a set of instructions executed by the microcomputer to perform at least one conditional check upon at least one of said stored manufacturing process and related equipment information, wherein the result of said at least one conditional check is visually conveyed for viewing by a human

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operator by the illumination condition of said at least one light emitting diode.

8. The electronic data card as claimed in claim 7 wherein said manufacturing process and related equipment information comprises a preventive maintenance variable.

9. The electronic data card as claimed in claim 7 wherein said manufacturing process and related equipment information comprises a process priority variable.

10. The electronic data card as claimed in claim 7, wherein said manufacturing process and related equipment information comprises a battery life variable.

11. A method of visually conveying critical information associated with a production lot of work in progress wafers in a microchip fabrication process comprising the steps:

providing an electronic data card capable of storing information, executing a set of instructions, and having at least one controllably illuminated LED and wherein the

electronic data card has an alphanumeric display, at least one operator interface button, a battery, and an apparatus for measuring capacity of the battery;

blanking the alphanumeric display to conserve battery capacity when the at least one operator interface button is not depressed;

using a battery capacity measuring apparatus to measure the battery capacity;

associating said electronic data card with said production lot throughout at least a portion of the fabrication process;

storing predetermined information corresponding to the production lot on said data card;

providing the electronic data card with a set of executable instructions for performing conditional checks on said predetermined information; and,

controlling the illumination of said at least one LED in a predetermined manner in accordance with results of said conditional checks on said predetermined information, whereby the manner in which the LED is illuminated visually conveys critical information associated with said production lot related to said predetermined information directly to a human operator.

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12. The method as claimed in claim 11 wherein multiple LED are controllably illuminated to convey critical information related to a single piece of information.

13. The method as claimed in claim 11 wherein multiple LED are controllably illuminated to convey critical information related to multiple pieces of information.